

AMENDMENTS TO THE CLAIMS

Claim 1. (Canceled)

Claim 2. (Currently Amended)

A coding device comprising:

a coder for coding an external input signal in a macroblock unit;

a first storing unit for storing a code output from said coder;

a second storing unit for storing an output from said first storing unit;

and

a code volume controller for controlling transfer of said code stored in said first storing unit to said second storing unit based on a code volume of said code obtained by said coder such that a length of a video packet constituted by said code is predetermined length or less;

~~The coding device according to claim 1, wherein~~

said code volume ~~control means~~ controller controls storage of a stuffing in said second storing ~~means~~ unit based on a minimum code volume obtained for each video object plane (VOP) unit image constituted by a video packet which is required for coding said unit image.

Claim 3. (Currently Amended)

The coding device according to claim 2, wherein
said code volume ~~control means~~ controller determines a minimum code
volume T_{min} to satisfy a following equation:

$T_{min} \geq 2 \cdot R_p - B$

$R_p = R/F$

wherein a bit count read from said second storing ~~means~~ unit in a unit image is
represented by R_p , an occupancy in said second storing ~~means~~ unit is represented
by B , a bit rate read from said second storing ~~means~~ unit is represented by R , and
a rate of a unit image to be coded is represented by F .

Claim 4. (Currently Amended)

The coding device according to claim 3, wherein
said bit rate R read from said second storing ~~means~~ is variable.

Claim 5. (Canceled)

Claim 6. (Canceled)

Claim 7. (Currently Amended)

The coding device according to claim 2, wherein

said code volume ~~control means~~ controller determines a minimum code volume T_{min} based on a following equation or a value having a result equivalent to a result of said equation:

$$T_{min} = \max (2 \cdot R_p - B, v_{bv_bits} + 2 \cdot R_p - v_{bv_bs})$$

$$R_p = R/F$$

wherein a bit count read from said second storing ~~means~~ unit in a unit image is represented by R_p , an occupancy in said second storing ~~means~~ unit is represented by B , an occupancy of a VBV buffer in a last unit image is represented by v_{bv_bits} , a size of said VBV buffer is represented by v_{bv_bs} , a bit rate read from said second storing ~~means~~ unit is represented by R , and a rate of a unit image to be coded is represented by F .

Claim 8. (Currently Amended)

The coding device according to claim 7, wherein said bit rate R read from said second storing ~~means~~ unit is variable.

Claim 9. (Currently Amended)

The coding device according to claim 2, wherein

said code volume ~~control means~~ controller inserts a stuffing into a video packet while ~~until~~ a first relationship is ~~not~~ satisfied, when a present code volume of a unit image including a last coded macroblock constituting said unit image is smaller than said minimum code volume T_{min} of said unit image and a number M

of macroblocks to be coded subsequently to said last coded macroblock, a predetermined length VPlen of said video packet, said minimum code volume Tmin and said present code volume Sc have said first relationship:

$$M \cdot VPlen < Tmin - Sc,$$

Q) said code volume ~~control means~~ controller constitutes a new video packet next to said video packet by inserting a macroblock next to said last coded macroblock without inserting a stuffing into said video packet, when said first relationship is not established and when said number M of macroblocks, said length VPlen of video packet, said minimum code volume Tmin and said present code volume Sc have a second relationship:

$$(M - 1) \cdot VPlen < Tmin - Sc.$$

Claim 10. (Canceled)

Claim 11. (Currently Amended)

A coding method comprising the steps of:

(a) coding an external input signal in a macroblock unit;

(b) storing a code obtained at said step (a);

(c) controlling an output of said code stored at said step (b) such that a length of a video packet constituted by said code obtained at said step (a) is a predetermined length or less based on a code volume of said code; and

(d) storing said output controlled by said step (c) ~~The coding method according to claim 10~~, wherein

said step (c) serves to control storage of a stuffing at said step (d) based on a minimum code volume obtained for each video object plane (VOP) unit image constituted by a video packet which is required for coding said unit image.

Claim 12. (Original)

Q' The coding method according to claim 11, wherein

said step (c) serves to determine a minimum code volume T_{min} to satisfy a following equation:

$$T_{min} \geq 2 \cdot R_p - B$$

$$R_p = R/F$$

wherein a bit count read by said step (d) in a unit image is represented by R_p , an occupancy in said step (d) is represented by B , a bit rate read by said step (d) is represented by R , and a rate of a unit image to be coded is represented by F .

Claim 13. (Original)

The coding method according to claim 12, wherein

said bit rate R at which a code stored at said step (d) is read is variable.

Claim 14. (Canceled)

Claim 15. (Canceled)

Claim 16. (Original)

The coding method according to claim 11, wherein

said step (c) determines a minimum code volume T_{min} based on a following equation or a value having a result equivalent to a result of said equation:

$$T_{min} = \max (2 \cdot R_p - B, v_{bv_bits} + 2 \cdot R_p - v_{bv_bs})$$

Q!
$$R_p = R/F$$

wherein a bit count read by said step (d) in a unit image is represented by R_p , an occupancy in said step (d) is represented by B , an occupancy of a VBV buffer in a last unit image is represented by v_{bv_bits} , a size of said VBV buffer is represented by v_{bv_bs} , a bit rate read by said step (d) is represented by R , and a rate of a unit image to be coded is represented by F .

Claim 17. (Original)

The coding method according to claim 16, wherein

said bit rate R at which a code stored at said step (d) is read is variable.

Claim 18. (Currently Amended)

The coding method according to claim 11, wherein

said step (c) serves to insert a stuffing into a video packet while ~~until~~ a first relationship is ~~not~~ satisfied, when a present code volume of a unit image including

a last coded macroblock constituting said unit image is smaller than said minimum code volume T_{min} of said unit image and a number M of macroblocks to be coded subsequently to said last coded macroblock, a predetermined length V_{Plen} of said video packet, said minimum code volume T_{min} and a present code volume Sc have a first relationship: $M \cdot V_{Plen} \geq T_{min} - Sc$,

Q | said code volume controlling step serves to constitute a new video packet next to said video packet by inserting a macroblock next to said last coded macroblock without inserting a stuffing into said video packet, when said first relationship is not established and when said number M of macroblocks, said length V_{Plen} of a video packet, said minimum code volume T_{min} and said present code volume Sc have a second relationship: $(M - 1) \cdot V_{Plen} < T_{min} - Sc$.

Claim 19. (New)

A video signal coding apparatus, comprising:

a video coder that codes a video signal as a video packet;

a first storage unit operatively connected to said video coder and stores said coded video signal;

a second storage unit operatively connected to said first storage unit and stores an output from said first storage unit; and

a control volume controller, operatively connected to said video coder, first storage unit and said second storage unit, said control volume controller determining a minimum code volume (T_{min}) for each video object plane (VOP)

unit image of said video packet and controlling a break of the video packet and the insertion of a stuffing such that a code volume Sc of the VOP is not smaller than said minimum code volume (T_{min}).

Claim 20. (New)

A method for coding a video signal, comprising:

coding said video signal as a video packet, by a video coder;

storing said encoded video signal in a first storage unit operatively connected to said video coder;

storing an output of said first storage unit in a second storage unit operatively connected to said first storage unit; and

determining, by a control volume controller operatively connected to said video coder, first storage unit and said second storage unit, a minimum code volume (T_{min}) for each video object plane (VOP) unit image of said video packet and controlling a break of the video packet and the insertion of a stuffing such that a code volume Sc of the VOP is not smaller than said minimum code volume (T_{min}).
